



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,820	09/03/2003	Mohammed H. Khan	PHELPS US-18(b)DIV	5193

27104 7590 09/27/2006

DAHL & OSTERLOTH, L.L.P.  
555 SEVENTEENTH STREET  
SUITE 3405  
DENVER, CO 80202-3937

EXAMINER

SILVERMAN, STANLEY S

ART UNIT PAPER NUMBER

1754

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/654,820	<b>Applicant(s)</b> KHAN ET AL.	
	<b>Examiner</b> Alvin T. Raetzsch	<b>Art Unit</b> 1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boudart et al. (4,851,206).

Boudart teaches both MoC and Mo<sub>2</sub>C. While Boudart's invention is directed at high surface area molybdenum carbides, Boudart teaches that the surface area of molybdenum carbide is proportional to the surface area of the oxide precursor. Boudart teaches that molybdenum oxide has a surface area in the range of 0.01-20 m<sup>2</sup>/g (Column 4, lines 59-61). Since it is known (and taught by Boudart) that conventional processes produce molybdenum carbides with surface areas proportional to the oxide precursor, molybdenum carbides with surface areas in the range of 0.01-20 m<sup>2</sup>/g are also taught. Boudart's goal is to maximize the surface area of the carbide for use in catalyst systems. Boudart does, however, also teach that the use of carbides for grinding is known (Column 1, lines 18-19). For grinding it is well known in the art to use lower surface area carbides because pores and similar surface features can weaken and lead to destruction of the grinding bodies. It would have been obvious to make molybdenum carbides with surface areas in the claimed ranges for use in grinding. The fact that Boudart is not interested in making carbides in the claimed range does not preclude the fact that the knowledge and production of such is actually taught.

As for the process limitations, product claims can be limited and defined by the process, but determination of patentability is based on the product itself. Only distinctive properties of the product that are imparted by the claimed process limitations are considered with regard to patentability (see MPEP § 2113). The process limitations present would not be expected to impart distinctive properties over the prior art.

*Response to Arguments*

2. Applicant's arguments filed 7/17/06 have been fully considered but they are not persuasive.

While Boudart does state that face centered molybdenum carbide will generally have a surface area of 15-250, it is clear that this the range of surface areas Boudart is interested in, and also that, with the use of 'generally', those outside of that range are known. As stated above, Boudart teaches that the surface area of the carbide is proportional to the oxide and that Mo oxides with surface areas of 0.01-20 are known. Mo<sub>2</sub>C is no different <sup>in this respect</sup> and the above reasoning applies. Additionally, the two surface areas taught in the example are just one specific embodiment and do not represent all of the teachings of surface area. Further, the fact that Boudart teaches a "conventional" Mo carbide with a surface area of 12.5 strengthens the reasoning presented in the rejection above that Mo carbides with surface areas in the claimed ranges are indirectly taught and known in Boudart.

Boudart does in fact anticipate MoC and Mo<sub>2</sub>C, as they are clearly listed at the top of the table in Column 3, a fact admitted by the applicant. It is not understood what is meant by "generic chemical formulas". The chemical formulas are no different (if anything they are more specific) than those in the applicant's claims.

The rejection is based upon scientific information presented in Boudart, specifically the surface areas of the precursors and the possible carbide surface areas that could be obtained therefrom by one of skill in the art.

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alvin T. Raetzsch whose telephone number is 571-272-8164. The examiner can normally be reached on 9-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ATR



STUART L. HENDRICKSON  
PRIMARY EXAMINER